

- 28 -

### CLAIMS

1. A method, comprising:  
determining, using mass spectrometry, a species suspected of being bound to a  
substrate having an array of entities bonded thereto, wherein the species is suspected of  
being able to bind to at least one of the entities.
2. The method of claim 1, wherein the determining step comprises determining the species  
using MALDI mass spectrometry.
3. The method of claim 2, wherein the determining step comprises determining the species  
using MALDI TOF mass spectrometry.
4. The method of claim 1, wherein the determining step comprises determining the species  
using a first mass spectrometry technique and a second mass spectrometry technique.
5. The method of claim 1, wherein the species is a small molecule.
6. The method of claim 5, wherein the small molecule is selected from a small molecule  
library.
7. The method of claim 1, wherein the species is a protein.
8. The method of claim 7, wherein the determining step comprises determining at least a  
portion of a primary sequence of the protein.
9. The method of claim 1, wherein the species is part of a mixture of substances.
10. The method of claim 9, wherein the mixture comprises cell lysate.
11. The method of claim 1, wherein the substrate includes a microarray.

- 29 -

12. The method of claim 1, wherein the substrate includes a protein array.
13. The method of claim 1, wherein the substrate includes a small molecule array.
- 5 14. The method of claim 1, wherein the substrate includes a self-assembled monolayer.
15. The method of claim 1, wherein the substrate includes a gold surface.
16. The method of claim 1, wherein the entities arise from a cell lysate.
- 10 17. The method of claim 1, wherein the entities are attached to the substrate .
18. The method of claim 1, wherein the entities include a protein.
- 15 19. The method of claim 1, wherein the entities include a small molecule.
20. The method of claim 1, wherein the species is able to specifically bind to at least one of the entities.
- 20 21. The method of claim 1, wherein the entities include an antibody.
22. The method of claim 1, wherein the determining step comprises determining the presence of the species.
- 25 23. The method of claim 1, wherein each entity is individually addressable by mass spectrometry.
24. A method, comprising:
  - providing a substrate having an array of entities bonded thereto;
  - 30 allowing a species to bind to at least one of the entities; and

- 30 -

without substantially desalting the substrate, applying mass spectrometry thereto.

25. The method of claim 24, wherein the species includes a protein.

26. The method of claim 24, wherein the substrate includes a microarray.

27. The method of claim 24, wherein the substrate includes a protein array.

28. The method of claim 24, wherein the substrate includes a small molecule array.

29. An article, comprising:

a species bound to at least one of an array of entities on a substrate, wherein the species bound to the entity is detectable using mass spectrometry.

30. The article of claim 29, wherein the species includes a protein.

31. The article of claim 29, wherein the substrate includes a microarray.

32. The article of claim 29, wherein the substrate includes a protein array.

33. The article of claim 29, wherein the substrate includes a small molecule array.